UAB
Universitat Autònoma de Barcelona

Current Scientific Matters

Code: 104053
ECTS Credits: 3

2025/2026

Degree	Type	Year
Chemistry	OT	4

Contact

Name: Simone Baroni

Email: simone.baroni@uab.cat

Teachers

Ramon Muñoz Tapia

Simone Baroni

Teaching groups languages

You can view this information at the end of this document.

Prerequisites

There are no prerequisites.

It is recommended, however, a certain familiarity with the computer environment since most of the activities will be done virtually through the Moodle classroom and the virtual campus, in particular, mathematical text processing programs, creation of graphics, generation of documents in PDF etc.

Objectives and Contextualisation

This subject is taught simultaneously as a first-year subject (compulsory) in the degrees of Mathematics and, Physics and as a fourth year subject (optional) in the degrees of Chemistry, Environmental Sciences, Computational Mathematics, Nanoscience and Nantecnology (from the Faculty of Sciences) and in the degrees of Biology, Microbiology and Genetics (of the Faculty of Biosciences).

The training objectives are the same for all degrees, but there will be aspects of the subject (type of work, assessments ...) that may be different depending on the course (first or fourth) and the degree of the student.

Training objectives:

- Expand the vision and interest of the student towards different fields of science, beyond the specialty they are studying.
- Acquire an interdisciplinary vision of science.

- Learn to write a scientific work that complies with formal quality standards and know how to present it in public.
- Analyze and reflect on the relationships between science, gender, culture and society.
- Provide the student with keys to the knowledge and basic understanding of frontier topics in current science, presented with an informative nature.
- Reflect on the nature of science.
- Acquire transversal competences.
- Gender perspective: give visibility to the contribution of women in science

Competences

- Be ethically committed.
- Communicate clearly in English.
- Communicate orally and in writing in one's own language.
- Learn autonomously.
- Manage, analyse and synthesise information.
- Obtain information, including by digital means.
- Reason in a critical manner
- Show sensitivity for environmental issues.
- Use IT to treat and present information.
- Use the English language properly in the field of chemistry.

Learning Outcomes

1. Be ethically committed.
2. Communicate clearly in English.
3. Communicate orally and in writing in one's own language.
4. Design effective information search strategies in any research subject.
5. Learn autonomously.
6. Manage, analyse and synthesise information.
7. Obtain information, including by digital means.
8. Reason in a critical manner
9. Show sensitivity for environmental issues.
10. Use IT to treat and present information.

Content

The subject is structured around a series of 10 lectures in different subjects given by specialists in each field. The course proposes the completion of some deliveries on selected topics. These tasks allow for the development of simple, but relevant, applications and illustrations in these subjects.

Students of the chemistry degree follow a reduced version of 3 ECTS (of the total of 6 ECTS). The evaluable activities are therefore reduced in the corresponding proportion, that is, students must carry out the activities of approximately half the course according to their own preferences. Naturally, you will be able to participate in the other activities if you wish.

The course topics are:

Lise Meitner and Robert Oppenheimer: Science and Society
Habitable planets beyond the Solar System

Genomics and climate change
Mathematical models of epidemics
Blockchain and cryptocurrencies
Circular Economy
Epigenetics
Artificial intelligence
Science and gender
Biosensor nanotechnology

Gender perspective

The course is designed so that the castof speakers is gender balanced with a proportion of female speakers of over 50%. At least two of topics directly address the role of women in science.

Sustainability

At least two of the conferences focus on the issues of climate change and sustainability.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Conferences	12	0.48	2, 1, 7, 8
Seminars	12	0.48	6, 1, 9, 8
Type: Supervised			
Final project	30	1.2	2, 3, 4, 6, 7, 10
Portfolio	5	0.2	5, 4, 6, 7, 8
Type: Autonomous			
Autonomous work	12	0.48	5, 4, 9, 7, 8

The students of the degree of chemistry (subject of 3 ECTS) will have to follow the classes and do the assessment activities corresponding essentially to half of the course (specific details in the evaluation section). All activities can be followed remotely through the Moodle classroom.

Presential learning activities

- Conferences (master classes). They are usually held in the conference room of the Science Faculty by a guest specialist. The lectures are recorded on video and can be viewed from the Moodle classroom. The conference materials (PowerPoint files, links...) will also be deposited in the Moodle classroom, where they can be consulted by all students. Some conferences may have a virtual format depending on the availability of the speakers.

- Seminars (complementary sessions for discussion and preparation of the final project). These are open sessions of discussion and debate that will be held the noramlly a week after the conference. The sspecialist will also present the bibliography and proposals for topics for the preparation of the final project. Attendance to these seminars sessions is highly recommended, since it will facilitate the preparation of the student's portfolio, and in any case, at least the attendance to the session

corresponding to the topic chosen for the final project is compulsory. These sessions are also recorded and some may be held remotely. Exceptionally, the non-presencial students who are unable to attend them can arrange a personal interview with the teachers to prepare the final work in a schedule to be agreed.

Supervised learning activities

- Preparation of a portfolio. Throughout the course, students must periodically submit a series of activities on the topics discussed in the lectures via the subject's Moodle classroom. These include taking tests, questions to the speaker, participating in complementary sessions and realizing homeworks on chosen topics. These deliveries will constitute the student's portfolio, and represent a compilation of evidence of the student's learning. These tasks may be different for first and fourth year students, adapting to their level of knowledge.
- Final project. The student will have to prepare in a group of 3-4 members a compulsory final project on one of the topics proposed in the seminars of the conferences. The work will be supervised by the specialist and the team of teachers of the subject. In the case of fourth year students, the work can not be done on topics directly related to the degree that the student is studying, and must be drafted and presented in English. All works must be presented in public in front of a committee. In especial cases of students being abroad the presentation of those can be done remotely. The final project is mandatory for all students of the subject.

Autonomous learning activities

The student will have to consult bibliography (books, scientific journals) and conduct information searches via the Internet in order to do the tasks that will be asked in the student's portfolio and the final work. Several tutorials are scheduled in different times of the year with the aim that students will be able to contact the team of professors to solve doubts and to keep track of the preparation of the portfolio and the final work. Attendees will also get advice on ICT resources for the writing of scientific texts and effective presentations.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final project	0,45	4	0.16	2, 3, 4, 6, 7, 8, 10
Invidual short tests	0,2	0	0	6, 9, 8
Portfolio	0,35	0	0	5, 6, 1, 7, 8

The students of the degree of chemistry (3 ECTS) can follow the course remotely. . Chemistry students must follow at least 6 lectures (of their choice) and answer the corresponding tests. Failure to complete two or more tests will automatically lead to the qualification of "not presented"

Specifically:

- Answer 5 tests and view the corresponding conferences
- Complete 3 deliveries of the proposed ones
- Write and present a paper in English in a group of 3-4 members

The details of these activities are described below

There are three types of evaluation activities:

A) Individual short objective tests (20% of the final grade).

These are multiple-choice tests that assess attention and understanding of the material.

Non-attending students must follow the lectures through the recordings and materials available on the Virtual Campus and complete a specific test for each one via the Moodle platform.
Chemistry students must attend at least fivelectures and complete the corresponding tests.
The average of the tests will be calculated based on the first five tests completed. If fewer than five are completed, the missing tests will count as zero.

B) Student portfolio (35% of the final grade)

The student must maintain an up-to-date virtual portfolio on Moodle, where all mandatory exercises and assignments proposed throughout the course will be submitted.
It should also include a selection of materials demonstrating the student's engagement in the discussion sessions of the lectures, including personal opinions and individual research.
Depending on the type of exercise, transversal skills such as critical thinking, autonomous learning, and the ability to analyze and synthesize will be assessed. These requirements may vary depending on whether the student is in the first or fourth year, adapting to their level.
The average of the submissions will be calculated based on the first three assignments completed. If fewer than three are submitted, the missing ones will count as zero.

C) Final project (45% of the final grade)

Each student must participate in the completion of a final project, mandatory to be done in groups of three to four students, chosen among those proposed by the lecturers of the various sessions.
The final project must be submitted in written form (electronically) within the established deadlines and must comply with the formal and content requirements of a scientific paper, following the criteria that will be explained at the beginning of the course in a dedicated info session.
In the case of fourth-year chemistry students, the paper must be written in English and cannot cover topics directly related to their own degree program.

At the end of the course, several public presentation sessions will be held on dates announced in the course calendar.All group members must participate in the presentation.
Evaluation will be carried out by a committee of professors who will assess the quality of the presentation, communication skills, organization, etc.
Where possible, the schedule will consider availability so that both attending and non-attending students can present their project, as the presentation is strictly mandatory.
For students abroad, presenting via videoconference will be considered.

In any case, it is the student's responsibility to reserve the presentation dates, which will be known at the beginning of the course, in order to be able to present the project.
In case of schedule conflict, the course team must be notified in advance to explore possible adjustments.

The final project grade will take into account both the written paper and the oral presentation. The final mark must be at least 4 out of 10 to pass the course.
If the final project grade is below 4, the team may be asked (though not necessarily) to revise and resubmit the project.

AI

Permitted use: "In this course, the use of Artificial Intelligence (AI) technologies is permitted as an integral part of the development of the work, provided that the final result reflects a significant contribution from the student in terms of analysis and personal reflection. The student must clearly identify which parts were generated using this technology, specify the tools used, and include a critical reflection on how these influenced the process

and the final result of the activity. Lack of transparency in the use of AI will be considered academic dishonesty and may lead to a penalty in the activity grade, or more severe sanctions in serious cases."

Not gradable
All students who do not submit the final course assignment will be considered "not gradable."

Bibliography

The bibliography of each specific subject will be given to the complementary or seminar session of the corresponding conference.

The transparencies of the conferences will be available on the Virtual campus.

About the writing of scientific articles see (for example): Cargill, Margaret and O'Connior, Patrick. Writing scientific research articles: strategy ans steps. Wiley-Blackwell, 2009

Software

Familiarity with advanced text processors such as LaTeX may be convenient for the realizaion of the final project in some of the topics of the course.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this link. To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(SEM) Seminars	1	Catalan	annual	morning-mixed
(SEM) Seminars	2	Catalan	annual	morning-mixed
(SEM) Seminars	3	Catalan	annual	morning-mixed
(SEM) Seminars	4	Catalan	annual	morning-mixed
(SEM) Seminars	5	Catalan	annual	morning-mixed
(SEM) Seminars	6	Catalan	annual	morning-mixed
(SEM) Seminars	7	Catalan	annual	morning-mixed
(SEM) Seminars	8	Catalan	annual	morning-mixed
(SEM) Seminars	9	Catalan	annual	morning-mixed
(SEM) Seminars	10	Catalan	annual	morning-mixed
(TE) Theory	1	Catalan	annual	morning-mixed
(TE) Theory	2	Catalan	annual	morning-mixed